Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

ESMO GOOD SCIENCE BETTER MEDICINE BEST PRACTICE

ANNALS OF ONCOLOGY driving innovation in oncology

THORACIC MALIGNANCIES, OTHER

1629P Increased incidence of thymic epithelial tumors during COVID-19 pandemic: A retrospective analysis from the French RYTHMIC network

J.C. Benitez[1], J. Florez-Arango[1], M-E. Boucher[1], E. Dansin[2], M. Kerjouan[3], L. Bigay-Game[4], E. Pichon[5], F. Thillays[6], P-E. Falcoz[7], S. Lyubimova[8], Y. Oulkhouir[9], F. Calcagno[10], L. Thiberville[11], C. Clément-Duchêne[12], V. Westeel[13], P.A. Thomas[14], J-M. Maury[15], T. Molina[16], N. Girard[17], B. Besse[18]

[1]Dept. Medical Oncology, Gustave Roussy - Cancer Campus, Villejuif, France; [2]Dept. Thoracic Oncology, Centre Oscar Lambret, Lille, France; [3]Dept. Thoracic Oncology, CHU de Rennes - Hopital Pontchaillou, Rennes, France; [4]Department of Pneumology, CHU Toulouse-Hôpital Larrey, Toulouse, France; [5]Pneumology, CHRU Hopitaux de Tours - Hopital Bretonneau, Tours, France; [6]Radiation Oncology Department, Centre Henri Becquerel, Rouen, France; [7]Thoracic Surgery Department, Hopitaux Universitaires de Strasbourg - Nouvel Hopital Civil, Strasbourg, France; [8]Dept. Thoracic Oncology, CHU de Montpellier - Hopital Gui de Chauliac, Montpellier, France; [9]Dept. Thoracic Oncology, Chu De Caen Normandie - Hôpital Clemenceau (CHR), Caen, France; [10]Medical Oncology Department, CHRU Besancon - Hopital Jean Minjoz, Besancon, France; [11]Dept. Pneumology, CHU de Rouen Normandie, Rouen, France; [12]Dept. Medical Oncology, CHRU Nancy, Nancy, France; [13]Pneumology Department, CHRU Besancon - Hopital Jean Minjoz, Besancon, France; [14]Thoracic Surgery Department, Assistance Publique Hopitaux de Marseille, Marseille, France; [15]Thoracic Surgery Department, CHU Lyon, Lyon, France; [16]Dept. Pathoplogy, Hôpital Neckers et Enfants, Paris, France; [17]Thorax Institute, Institut Curie, Paris, France; [18]Cancer Medicine Department, Institut Gustave Roussy, Villejuif, France

Background: TETs are rare malignancies ranging from indolent thymoma (T) A to aggressive thymic carcinoma (TC). The incidence rate of TET ranges from 0.13 to 0.32 per 100 000 person/year, although limited data is available. Because of respiratory complications, patients with COVID-19 infection frequently had chest CT-scan, leading to a potential overdiagnosis of asymptomatic thoracic lesion, including TET. Here, we report the incidence rate of TET by year during first decade of the French RYTHMIC network.

Methods: RYTHMIC is a French network for TETs composed of national and regional expert centers, with the objective of systematic discussion of patient's management at a single national tumor board, based on consensual guidelines. We conducted a retrospective analysis of patients from RYTHMIC between January 2012 and April 2022. Data were prospectively collected in the registry. We aimed to assess clinic-pathological and epidemiological characteristics of TETs in RYTHMIC cohort.

Results: 3667 pts were included in the analysis. The median age at diagnosis was 63.5 (range 9-91). 15% (n=552) of AIDs, mainly myasthenia Gravis (n=411, 74.4%). T B2 was the most frequent (n=540, 14.7%) followed by AB (10.7%), B3 (6.7%), TC (6.6%), B1 (6.3%) and, A (4%). Most of the pts were diagnosed encapsulated (MK I, n=358) or with invasion of the capsule (MK IIa and IIb, n= 308 and 272, respectively). The prevalence of TETs in France based on RYTHMIC nationwide registry was 0.0054% at 30th of March 2022 cut-off. Incidence is shown in the table. In 2020, incidence x 100 000 person/year was 0.97.

Table: 1629P

Year	New patients (N)	France population (M)	Increase of population in France	Incidence x 100.000 inhabitants	Increase incidence in RYTHMIC
2012	173	65,24	-	0,26	-
2013	179	65,56	0,32	0,27	0,01
2014	260	65,9	0,34	0,39	0,12
2015	320	66,42	0,52	0,48	0,09
2016	421	66,6	0,18	0,63	0,15
2017	304	66,77	0,17	0,45	-0,18
2018	358	66,99	0,22	0,53	0,08
2019	388	67,13	0,14	0,57	0,04
2020	654	67,45	0,32	**0,97**	**0,4**
2021	338	67,62	0,17	0,49	-0,48

Conclusions: Incidence of TETs in our network is higher than previously reported. In 2020, we observed a pic in the incidence (170% compared to the average rate), potentially due to the COVID induced CT-scans.

Legal entity responsible for the study: RYTHMIC French network.

Funding: Has not received any funding.

Disclosure: All authors have declared no conflicts of interest.

https://doi.org/10.1016/j.annonc.2022.07.1708

1630P Effectivity and safety of anti-SARS-CoV2 vaccination in patients with lung cancer: The VAC-CaP observational study (GECP 21/01)

E. Nadal[1], M.T. Moran Bueno[2], D. Rodriguez Abreu[3], Z. Vidales Sepulveda[4], M.A. Sala Gonzalez[5], M. Antonanzas Basa[6], J.J. Garcia Gonzalez[7], P. Diz Tain[8], M. Martinez Kareaga[9], G. Lopez Vivanco[10], J. Baena Espinar[11], B. Campos Balea[12], D. Cumplido Buron[13], S. Cerezo Gonzalez[14], A. Diaz[15], M. Guirado[16], X. Mielgo Rubio[17], O.J. Juan Vidal[18], M. Saigi Morgui[2], M. Provencio Pulla[19]

[1]Medical Oncology Department, ICO - Institut Català d'Oncologia l'Hospitalet (Hospital Duran i Reynals), L'Hospitalet De Llobregat, Barcelona, Spain; [2]Medical Oncology Dept, ICO - Institut Català d'Oncologia Badalona (Hospital Universitario Germans Trias i Pujol), Badalona, Barcelona, Spain; [3]Medical Oncology Department, Hospital Universitario Insular de Gran Canaria - Complejo Hospitalario Materno-Insular, Las Palmas De Gran Canaria, Canary Islands, Spain; [4]Medical Oncology Department, ICO - Institut Català d'Oncologia l'Hospitalet (Hospital Duran i Reynals), L'Hospitalet De Llobregat, Spain; [5]Medical Oncology, Hospital Universitario de Basurto, Bilbao, Spain; [6]Medical Oncology Dept., Hospital Clinico Universitario San Carlos, Madrid, Spain; [7]Dept. Oncologia Medica, CHUS - Complejo Hospitalario Universitario de Santiago de Compostela SERGAS, Santiago De Compostela, Spain; [8]Medical Oncology Department, Complejo Asistencial Universitario de León - Hospital de León, León, Spain; [9]Medical Oncology, HUA - Hospital Universitario Araba - Txagorritxu, Vitoria-Gasteiz, Spain; [10]Medical Oncology, Hospital de Cruces, Barakaldo, Spain; [11]Medical Oncology, Hospital Universitario 12 Octubre, Madrid, Spain; [12]Oncology, Hospital Universitario Lucus Augusti (HULA), Lugo, Spain; [13]Medical Oncology, Hospital de Torrevieja, Alicante, Spain; [14]Medical Oncology, Hospital General Mancha Centro, Alcazar De San Juan, Spain; [15]Medical Oncology, Complejo Asistencial de Zamora, Zamora, Spain; [16]Medical Oncology, Hospital General Universitario de Elche, Elche, Alicante, Spain; [17]Medical Oncology Department, Hospital Universitario Fundación Alcorcón, Alcorcon, Madrid, Spain; [18]Medical Oncology Dept., Hospital Universitari i Politècnic La Fe, Valencia, Spain; [19]Medical Oncology, Fundacion Para La Investigacion Biomedica Del Hospital Universitario Puerta De Hierro Majadahonda, Majadahonda, Spain

Background: Patients with cancer were excluded from initial clinical trials assessing anti-SARS-CoV2 vaccines. The aim of this study is to evaluate the safety and effectivity of anti-SARS-CoV2 vaccination in patients with lung cancer.

Methods: This observational non-interventionist study included patients diagnosed with lung cancer of any histology and tumor stage who had received at least one dose of anti-SARS-CoV2 vaccine approved by EMA and who signed the informed consent. The study was promoted by the Spanish Lung Cancer Group (GECP).

Results: 794 patients from 27 centers were included in the study between January and October 2021. Main patients' characteristics are shown in the table. Most patients (71.8%) were receiving active treatment when received the vaccination: chemotherapy (45.8%), immunotherapy (38.2%), radiotherapy (13.4%) and targeted therapy (14.5%). Only 9.7% of patients have had COVID-19 before vaccination. Most patients received mRNA vaccines at any vaccination round: 1st, 86.4%; 2nd, 87%; 3rd, 73.2% and most received the second (98.2%) and third booster dose (74.7%). Most vaccine-related adverse events were grade 1 (79.6%) or grade 2 (17%) and only 7 patients experienced grade 3 and 1 patient grade 4 toxicity. There were 58 cases of COVID-19 (7.3%) but most were asymptomatic or paucisymptomatic (62.1%). Only 10 patients (1.3%) were admitted at the hospital, but none require intensive unit support. During study follow-up, 9 patients died due to cancer or to other causes, no COVID-19-related deaths after receiving the vaccination were recorded.

Table: 1630P

Patients' characteristics	
Age, median (range)	66 (33.91)
Gender, n (%) Male Female	511 (64.4%) 283 (35.6%)
Smoking status, n (%) Former smoker Current smoker Never smoker Unknown	420 (52.9%) 257 (32.4%) 115 (14.5%) 2 (0.3%)
ECOG Performance Status, n (%) 0 1 2	278 (35%) 483 (60.8%) 32 (4.2%)
Histology, n (%) Non-small cell lung cancer Small cell lung cancer Other	704 (88.7%) 76 (9.6%) 14 (1.7%)
Tumor stage, n (%) I-II III IV Unknown	109 (13.7%) 161 (20.3%) 449 (56.5%) 75 (9.4%)

Conclusions: Anti-SARS-CoV-2 vaccines are safe in patients with lung cancer and most vaccine-related adverse events were mild or moderate. The rate of COVID-19 infection is low in this cohort of vaccinated patients with lung cancer and most COVID-19 cases were mild and managed without hospitalization.

Clinical trial identification: NCT05009030.

Legal entity responsible for the study: Fundacion GECP (Spanish Lung Cancer Group).

Funding: Has not received any funding.

Disclosure: All authors have declared no conflicts of interest.

https://doi.org/10.1016/j.annonc.2022.07.1709

1631P The efficacy and safety of anlotinib alone and in combination with other drugs in previously treated advanced thymic epithelia tumors: A retrospective analysis

S. Li[1], X. Zhang[2], H. Zhou[3], H. Zhang[3], J. Yu[1]

[1]Radiation Oncology, Shandong Cancer Hospital and Institute Affiliated Shandong First Medical University and Shandong Academy of Medical Sciences, Jinan, China; [2]Internal Medicine-Oncology, Shandong Cancer Hospital Affiliated to Shandong University, Jinan, China; [3]Internal Medicine-Oncology, Shandong Cancer Hospital and Institute Affiliated Shandong First Medical University and Shandong Academy of Medical Sciences, Jinan, China

Background: Thymic epithelial tumors (TETs) are rare thoracic malignancies with no standard second-line treatment. Tumor angiogenesis is closely associated with the pathogenesis and invasiveness of TETs. Anlotinib is a small-molecule multi-target tyrosine kinase inhibitor (TKI) which inhibits tumor angiogenesis and tumor cell proliferation. Published studies have demonstrated the promising clinical effect of multi-target TKIs sunitinib and lenvatinib in previously treated TETs. However, TKIs have high incidence of adverse events (AEs). In this study, we investigated the clinical efficacy and safety of anlotinib in previously-treated TET patients.

Methods: We collected clinical data of 22 patients from Shandong cancer hospital and institute between October 2018 and March 2022. These patients were diagnosed with advanced TETs and have received at least the 1st line treatment. We analyzed clinical effect between anlotinib monotherapy and anlotinib combination therapy in the 2nd line or anlotinib treatment in different lines.

Results: These 22 patients included 18 cases of thymic carcinoma (TC) and 4 cases of thymoma (T). 68.2% patients were males, and median age was 53 years. Fourteen patients (63.6%) received anlotinib monotherapy and 8 patients (36.4%) received anlotinib combination therapy. In the overall population, ORR was 9.1% and DCR was 81.8%. The median PFS in overall population was 12 months (14 months for T and 9 months for TC), and the median OS was 24 months (survival was not reached for T and 24 months for TC). The median PFS was 9, 24.3 and 10 months for second line, third line and fourth line treatment, respectively. and the median OS was 23, 24.3 and 24 months for second line, third line and fourth line treatment, respectively. The incidence of AEs was 50%, most of them were grades I and II, and the incidence of grades III and IV AEs was 9%.

Conclusions: The survival data indicate that the efficacy of anlotinib is superior to sunitinib and lenvatinib. The AEs and toxicity were significantly lower than that of using sunitinib or lenvatinib. Our results suggest that anlotinib is a promising treatment option for previously-treated TET patients and its toxicity is tolerable.

Legal entity responsible for the study: Shandong Cancer Hospital and Institute Affiliated to Shandong First Medical University and Shandong Academy of Medical Science.

Funding: The National Natural SciencesFoundation of China (no.8150111724; to H.Zhang), the Joint Fund for Cancer Prevention and Treatment of Shan dong Natural Fund (no.ZR2019LZL015; to H.Zhang), the National Key Research and Development Projects of China (2018YFC1312201), the Radiation Oncology Innovate Unit, Chinese Academy of Medical Sciences (2019RU071), the Academic Promotion Program of Shandong First Medical University (2019ZL002), the foundation of National Natural Science Foundation of China (81972863, 81627901and 82030082), the CSCO-2019 Hausen Oncology Research Fund Project (Y-HS2019-52) and The Key Research and Development Program of Shandong Province (Grant No. 2018GSF118097).

Disclosure: All authors have declared no conflicts of interest.

https://doi.org/10.1016/j.annonc.2022.07.1710

1632P Analysis of penpulimab plus anlotinib in pleural mesothelioma or thymic carcinoma patients who have received at least one line of chemotherapy

C. Zhang[1], Y-K. Shi[2], Q. Liu[3], K. Wu[4], X. Li[5], J. Cui[6], Y-M. Jia[7]

[1]Medical Oncology, Chinese Academy of Medical Sciences and Peking Union Medical College - National Cancer Center, Cancer Hospital, Beijing, China; [2]Medical Oncology Dept., Chinese Academy of Medical Sciences - National Cancer Center, Cancer Hospital, Beijing, China; [3]Oncology, Shenyang Chest Hospital, Shenyang, China; [4]Radiation therapy Department, Fudan University Shanghai Cancer Center, Shanghai, China; [5]Oncology Department, The First Affiliated Hospital of Zhengzhou University, Zhengzhou, Henan, China; [6]Oncology Center, The First Hospital of Jilin University, Changchun, China; [7]Oncology, The Second People's Hospital of Yibin, Yibin, China

Background: Pleural mesothelioma and thymic carcinoma have low morbidity and few treatment options available. Penpulimab is an IgG1 PD-1 antibody, which features point mutations in the antibody Fc region to eliminate all Fc gamma receptor binding and associated effector function. Anlotinib is a multi-targeted tyrosine kinase inhibitor selective for VEGF receptors 1/2/3, FGF receptors 1-4, PDGF receptors α and β, and c-kit , Preclinical research has confirmed that penpulimab and anlotinib can significantly reduce the proportion of TIM3+PD1+CD8+ T cells , improving anti-tumor efficacy. This study aimed to evaluate the efficacy and safety of anlotinib in combination with penpulimab in patients with pleural mesothelioma or thymic carcinoma who have received at least one line of chemotherapy.

Methods: This study is a single-arm phase II study. Eligible patients had recurrent/metastatic pleural mesothelioma and thymic carcinoma who were inoperable or intolerant to radical radiotherapy and had failed at least first-line chemotherapy, were over 18 years old, with ECOG PS of 0-1. The primary endpoint was ORR, and secondary endpoints were DCR, PFS, DOR, OS and safety. Patients received anlotinib (12mg QD from day 1 to 14 of a 21-day cycle) plus penpulimab (200mg Q3W) until disease progression or intolerance.

Results: Between Nov 13, 2020, and May 12,2021, 12 patients were enrolled and treated, including 5 cases of thymic carcinoma and 7 cases of pleural mesothelioma. The data cutoff date was on Apr 19, 2022. There were 10 males and 2 females. All patients had ECOG PS of 1. Four patients received only one prior line of chemotherapy. 11 patients were available for tumor assessment, ORR was 18.2%, and DCR was 81.8%. The data on PFS and OS were not mature. The common TEAE were hypoalbuminemia (75%), hypertension (75%), anemia (75%), and hypertriglyceridemia(62.5%). The incidence of grade 3 or higher treatment-related AEs was 62.5%, and there was one immune-related AE of grade 3 or higher which was hypocalcemia.

Conclusions: Penpulimab plus annlotinib demonstrated preliminary antitumor efficacy and acceptable toxicity in pleural mesothelioma or thymic carcinoma patients who have received at least one line of chemotherapy.

Clinical trial identification: NCT04203719, release date: December 18, 2019.

Legal entity responsible for the study: Chia Tai Tianqing Pharmaceutical Group Co., Ltd.

Funding: Chia Tai Tianqing Pharmaceutical Group Co., Ltd.

Disclosure: All authors have declared no conflicts of interest.

https://doi.org/10.1016/j.annonc.2022.07.1711

1633P The correlation between the geographical distribution of asbestos-exposed workplaces and the increased risk of developing malignant mesothelioma, lung cancer, laryngeal cancer, and ovarian cancer: A nationwide population-based analysis in Japan

A. Saito[1], H. Charvat[2], T. Shimoi[1], T. Matsuda[3], K. Yonemori[1]

[1]Department of Medical Oncology, National Cancer Center Hospital, Tokyo, Japan; [2]Faculty of International Liberal Arts, Juntendo University, Tokyo, Japan; [3]Center for Cancer Registries, Center for Cancer Control and Information Services, National Cancer Center Research Institiute - Tsukiji Campus, Chuo-ku, Japan

Background: Asbestos exposure causes some malignancies. Several studies and financial aids for mesothelioma patients are available but are limited for other malignancies. This study aimed to determine the distribution of incidence and the association of malignancies with asbestos exposure.

Methods: Data on mesothelioma, lung cancer, ovarian cancer, and laryngeal cancer from 2011 to 2017 were acquired from the national cancer registry database in Japan. The density of asbestos-exposed workplaces was determined from public data from 2005 to 2020. Variation in age-standardized incidence rates (ASR) between prefectures was assessed by funnel plots. An adjusted Mixed-effect Poisson model was used to study the association between the density of asbestos-exposed workplaces and cancer incidence.

Results: The study included 9,743 patients with pleural mesothelioma, 1,607 patients with non-pleural mesothelioma, 765,484 patients with lung cancer, and 35,187 patients with laryngeal cancer, and 75,166 patients with ovarian cancer. A total of